

Application No. 10/812,665
Amendment dated December 9, 2004
Reply to Office Action of September 28, 2004

Listing of Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (original) A method of monitoring an operation of a dispensing gun dispensing a pattern of fluid onto a substrate moving with respect to the dispensing gun, the dispensing gun turning ON and OFF in response to transition signals and a sensor providing feedback signals representing detected edges of fluid dispensed onto the substrate by an operation of the fluid dispensing gun, the method comprising measuring delays between occurrences of the transition signals and detecting corresponding edges of the fluid resulting from the transition signals.
2. (original) The method of claim 1 further comprising:
 - detecting occurrences of transition signals commanding the dispensing gun to turn ON and OFF;
 - turning the dispensing gun ON and OFF in response to the transition signals;
 - and
 - detecting edges of fluid dispensed onto the substrate in response to the dispensing gun being turned ON and OFF.
3. (original) The method of claim 1 further comprising providing an output relating to the delays.
4. (original) The method of claim 1 further comprising:
 - providing a signal representing a presence of the substrate in a proximity of the dispensing gun; and
 - sampling the transition signals and the feedback signals on a periodic basis;
 - storing sampled transition signals and sampled feedback signals; and
 - correlating the sampled feedback signals to the sampled transition signals to determine the delays.

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5. (original) The method of claim 4 further comprising sampling the transition signals and the feedback signals on a periodic basis determined by equal increments of time.
6. (original) The method of claim 4 further comprising sampling the transition signals and the feedback signals on a periodic basis determined by equal increments of relative motion between the substrate and the dispensing gun.
7. (original) The method of claim 4 further comprising identifying edges of the transition signals commanding the dispensing gun to turn ON and OFF.
8. (original) The method of claim 7 further comprising identifying leading edges of the transition signals representing commands to turn the dispensing gun ON.
9. (original) The method of claim 7 further comprising identifying trailing edges of the transition signals representing commands to turn the dispensing gun OFF.
10. (original) The method of claim 7 further comprising identifying leading and trailing edges of the transition signals representing commands to turn the dispensing gun respectively ON and OFF.
11. (original) The method of claim 7 wherein the method further comprises:
 - generating first, narrow, fixed-width pulses in response to edges of the sampled transition signals; and
 - generating second, narrow, fixed-width pulses in response to an edge of respective ones of the sampled feedback signals.
12. (original) The method of claim 11 further comprising correlating the second, fixed-width pulses to the first, fixed-width pulses to produce the delays.

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13. (original) A method of monitoring an operation of a dispensing gun dispensing an adhesive pattern onto a substrate moving with respect to the dispensing gun, the method comprising:

- providing gun ON and OFF signals representing times at which the dispensing gun should open and close, respectively;

- opening and closing the dispensing gun in response to the gun ON and OFF signals, respectively;

- providing feedback signals representing edges of the adhesive dispensed onto the substrate resulting from opening and closing the dispensing gun; and

- determining delays between occurrences of the gun ON and OFF signals and corresponding edges of the adhesive resulting from the gun ON and OFF signals.

14. (original) The method of claim 13 further comprising providing the gun ON and OFF signals from a pattern controller.

15. (original) The method of claim 13 further comprising providing the gun ON and OFF signals from a gun driver.